

DL-SCU21C Owners Manual





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Important Safety Instructions

- » Please completely read and verify you understand all instructions in this manual before operating this equipment.
- » Keep these instructions in a safe, accessible place for future reference.
- » Heed all warnings.
- » Follow all instructions.
- » Do not use this apparatus near water.
- » Clean only with a dry cloth.
- » Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- » Use only accessories specified or recommended by Intelix.
- » Explanation of graphical symbols:
 - ♦ Lightning bolt/flash symbol: the lightning bolt/flash and arrowhead within an equilateral triangle symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product enclosure which may be of sufficient magnitude to constitute a risk of shock to a person or persons.



Exclamation point symbol: the exclamation point within an equilateral triangle symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



- » WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE AND OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.
- » Use the mains plug to disconnect the apparatus from the mains.
- » THE MAINS PLUG OF THE POWER CORD MUST REMAIN READILY ACCESSIBLE.
- » Do not defeat the safety purpose polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of your obsolete outlet. Caution! To reduce the risk of electrical shock, grounding of the center pin of this plug must be maintained.
- » Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and the point where they exit from the apparatus.
- » Do not block the air ventilation openings. Only mount the equipment per Intelix's instructions.
- » Use only with the cart, stand, table, or rack specified by Intelix or sold with the equipment. When/if a cart is used, use caution when moving the cart/equipment combination to avoid injury from tip-over.



- » Unplug this apparatus during lightning storms or when unused for long periods of time.
- » Caution! Shock Hazard. Do not open the unit.
- » Refer to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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Product Overview

The DL-SCU21C is a 2x1 HDMI 2.0b auto switcher featuring one HDMI input, one USB-C input and one HDMI output. The USB-C input supports video, data (USB host) and power charging up to 40w. There is a built in 2 port USB 3.0 hub that is backwards compatible with USB 2.0 and USB 1.1 formats. This switcher supports video resolutions up to 4Kx2K@60Hz 4:4:4, HDR, and multichannel audio. The USB-C input supports Display Port over Alternate Mode (ALT-DP), any laptop computer used with this device must support this mode.

NOTE: When using a laptop with USB-C ports, check the laptops capability for supporting ALT-DP for video, data and power charging, not all laptops may support all three functions at once with external devices.

In addition to passing native EDID information from the display to an input on the switcher, there are multiple built-in EDID settings to choose from to simplify an installation. The switcher will deembed 2 channel analog audio for audio reinforcement which is de-embedded from the HDMI output. The devices switching functions can be controlled via RS232 and front panel control buttons can be configured to control 3rd party devices connected to the switcher such as a TV display via CEC or RS232.

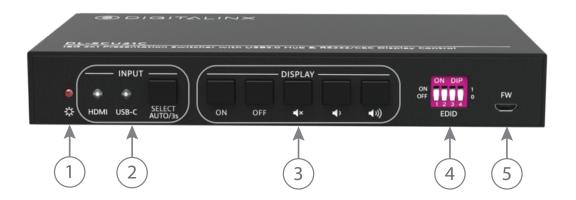
When in auto-switch mode, the switcher will switch to an input as soon as a new source is connected. When the active source is removed, the switcher will select the prior source connected. When switching between HDMI and USB-C video inputs, the USB B *Host* port will follow HDMI and USB-C will act as a USB host disengaging USB B Host control.

Product Contents

- DL-SCU21C 2x1 Auto Presentation Switcher
- Quick Install Guide
- (1) 5 pin Phoenix Connector
- (1) DB9- 3 pin Phoenix RS232 breakout cable
- (1) DC24V 2.71A power supply with US power plug
- (2) Mounting Clips with 4 screws
- (4) Plastic Cushions

Front and Rear Panels

Front Panel



1. POWER LED - Illuminates solid RED when power is properly applied

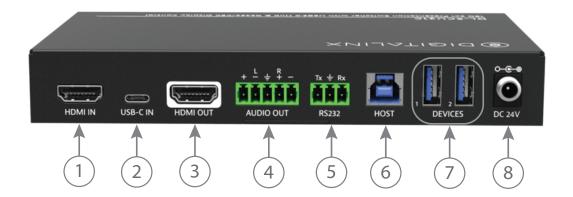
2. INPUT LEDs:

- *HDMI* Illuminates solid GREEN when input is selected in auto switch mode, illuminates orange when input is selected in manual switch mode
- *USB-C* Illuminates solid GREEN when input is selected in auto switch mode, illuminates orange when input is selected in manual switch mode
- SELECT AUTO / 3s Switches between auto and manual switch mode. Hold down for 3 seconds to enable /disable audio switch mode.

3. DISPLAY:

- ON Press to turn display ON either by CEC or RS232
- OFF Press to turn display OFF either by CEC or RS232
- Volume Mute Press to mute display either by CEC or RS232
- Volume Down Press to turn display volume down either by CEC or RS232
- Volume Up Press to turn display volume up either by CEC or RS232
- 4. EDID Dip switch setting for EDID management
- **5. FW** USB port for firmware upgrade procedure

Rear Panel



- 1. **HDMI IN** HDMI input port for connecting HDMI source
- **2. USB-C IN -** USB-C input port for connecting source; USB-C port supports video, data (USB Host) and power charging.
- 3. HDMI OUT HDMI output for connecting to TV display
- **4. AUDIO OUT** 5 pin phoenix; balanced left and right analog audio output
- **5. RS232** 3 pin phoenix; output port for connection display or 3rd party control
- **6. HOST** USB B port for USB host device i.e. computer
- 7. **DEVICES 1/2** (2) USB A ports for USB client devices i.e. web camera, web microphone
- **8. DC 24V** Locking power supply port

Installation Instructions

Mount the Switcher

At least 2 inches of free air space is required on both sides of the DL-SCU21C for proper side ventilation. Avoid mounting the DL-SCU21C near a power amplifier or any other source of significant heat.

Mounting Instructions

Remove the four screws on both sides of the DL-SCU21C, then attach the supplied mounting clips to the DL-SCU21C for surface or rack mounting.

Connect Sources

Connect a source device to the HDMI input using a High Speed HDMI cable that is less than or equal to 1.5 meters in length for 4k60 signals and 5 meters for 1080p signals. For source devices that are further away, it is highly recommended to install an HDMI extender such as the Digitalinx DL-HD70, DL-HDE100, DL-HDE100-H2 or the DL-HD2100.

Connect a source device to the USB-C input using a USB-C cable capable of support video, data and power charging no longer than 2 meters (6.6') in total length. The DL-SCU21C supports ALT-DP mode for video, to ensure a laptop is compatible with the DL-SCU21C check the laptops capability of supporting this mode.

Note that not all laptops will support video, data and power charging all at once with external devices.

Connect Displays

Connect the display device to the HDMI output using a High Speed HDMI cable that is less than or equal to 1.5 meters in length for 4k60 signals and 5 meters for 1080p signals. For display device that is further away, it is highly recommended to install an HDMI extender such as the Digitalinx DL-HD70, DL-HDE100, DL-HDE100-H2 or the DL-HD2100.

Connect USB Peripherals

Connect USB peripherals, such as a USB 3.0, 2.0 or 1.1 compatible Mic or Camera, to the USB-A client ports on the DL-SCU21C with USB cables equal to or less than 4.5 meters or 15' in total length.

Connect a USB host, such as a computer, to the USB-B host port on the DL-SCU21C with a USB A to B cable equal to or up to 4.5 meters or 15 feet in total length.

For USB devices that are further away from these distances, it is highly recommended to install a USB extender such as the Digitalinx DL-USB2 or the Intelix INT-3.1CX.

The USB-C port also behaves as a USB host for the USB hub in addition to transporting video and power charging. Connect a USB host, such as a computer, to the USB-C port on the DL-SCU21C with a USB type C cable equal to or up to 2 meters or 6.6 feet in total length. Check the cable and laptops capability for supporting video and data simultaneously.

Connect Audio (Optional)

Connect an audio amplifier to the audio output of the DL-SCU21C, the switcher features a left and right balanced audio output.

Connect RS232 Control (Optional)

There are two ways to connect and use RS232 control with the DL-SCU21C, connect the RS232 DB-9 to 3 pin phoenix cable to a control system to control of the DL-SCU21C functions or connect the RS232 DB-9 to 3 pin phoenix cable to a display device to control the display using the front panel control buttons on the DL-SCU21C. To program or pre-load RS232 control commands for a display using front panel buttons see section RS232 Control Commands, pg 11.

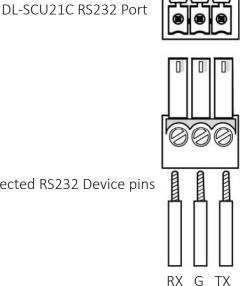
RS232 Wiring

Connect the controller or display RX signal to TX on the DL-SCU21C, then connect the controller or device TX signal to RX on the DL-SCU21C.

RS232 Settings:

- 9600 baud
- 8 Data Bits
- 1 Stop Bit
- Parity = none

Conncected RS232 Device pins



TX G RX



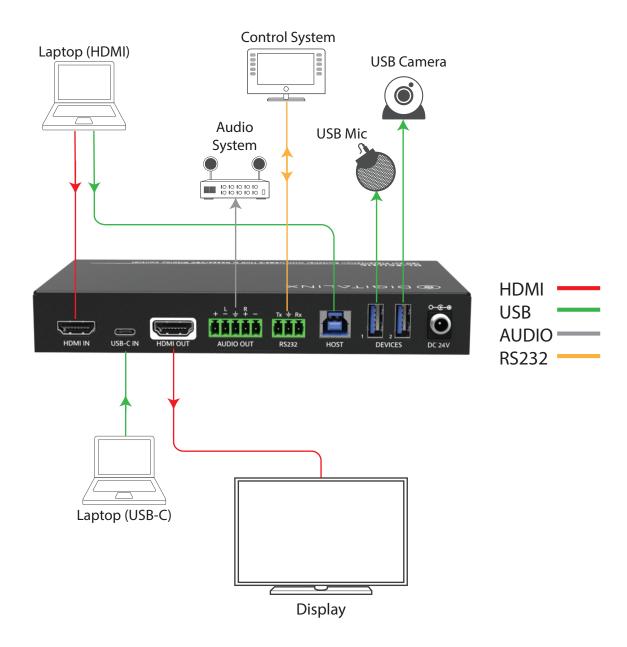
Applying Power

Connect the included power supply to the DL-SCU21C and lock the power supply to the power connector by twisting the locking collar clockwise.

Switching Capabilities

Switch between sources and displays using the switches front panel buttons or by serial ./ RS232 control.

A/V Diagram



EDID Management

EDID (Extended Display Identification Data) is data generated from a connected display in an HDMI system to communicate the resolution capabilities to a connected video source. The DL-SCU21C features an EDID copy mode that can be used to copy EDID settings from the display connected to the HDMI output of the switcher so they can be communicated to the sources connected to the video inputs If preset EDID tables are preferred rather than using EDID copy use the dipswitch settings below for the desired resolution and audio settings.

When in the down position, the switch represents "0" of OFF, when the switch position in the up position it represents "1" or ON.



EDID Setting	Position 1	Position 2	Position 3	Position 4
EDID Copy (default)	0	0	0	0
1280X720 @60HZ, Stereo Audio	0	0	0	1
1920x1080 @ 60Hz, DVI (No Audio)	0	0	1	0
1920x1080 @ 60Hz, Stereo Audio	0	1	0	0
1920x1080 @ 60Hz, Multi-channel Audio	0	1	0	1
3840x2160 @ 30Hz 4:2:0, HDR, Stereo Audio	0	1	1	1
3840x2160 @ 30Hz 4:2:0, HDR, Multi-channel Audio	1	0	0	0
3840x2160 @ 60Hz 4:4:4, Stereo Audio	1	0	0	1
3840x2160 @ 60Hz 4:4:4, Multi-channel Audio	1	0	1	0

Note: When using EDID copy, if EDID fails the EDID will default to 1080p.

RS232 Control Commands

RS232 Settings: 9600 baud, 8 Data bits, 1 Stop bit, Parity = None

All responses end in a carriage return (hex 0D) and a line feed (hex 0A) unless otherwise noted.

<CR> = Carriage return (Hex OD)

<LF> = Line Feed (Hex OA)

Source Switching Commands

Description	Command	Examples
Switches to HDMI input	#SET_AV H	Command: #SET_AV H <cr><lf></lf></cr>
		Response: @AV H <cr><lf></lf></cr>
Switches to USB-C input	#SET_AV C	Command: #SET_AV C <cr><lf></lf></cr>
		Response: @AV C <cr><lf></lf></cr>
Query current input source	#GET_AV	Command: #GET_AV <cr><lf></lf></cr>
		Response: @AV H <cr><lf></lf></cr>
		or
		@AV C <cr><lf></lf></cr>
Enable auto switching mode	#SET_AUTO_SWITCH 1	Command: #SET_AUTO_SWITCH 1 <cr><lf></lf></cr>
		Response: @AUTO_SWITCH 1 <cr><lf></lf></cr>
Disable auto switching mode	#SET_AUTO_SWITCH 0	Command: #SET_AUTO_SWITCH 0 <cr><lf></lf></cr>
		Response: @AUTO_SWITCH 0 <cr><lf></lf></cr>
Query current auto switching mode status	#GET_AUTO_SWITCH	Command: #GET_AUTO_SWITCH <cr><lf></lf></cr>
		Response: @AUTO_SWITCH 1 <cr><lf></lf></cr>
		or
		@AUTO_SWITCH 0 <cr><lf></lf></cr>

CEC Display Control Commands

The following commands can be used to control the display connected to the HDMI output of the DL-SCU21C via CEC.

To use this feature a CEC compatible TV display must be used and the feature must be turned ON in the display menu properties.

NOTE: Not all CEC display control functions below may be supported by a TV display manufacturer. Test CEC display control first before deploying to be sure what your TV will support.

Description	Command	Examples
Turns connected display ON	#SET_DISPLAY 1	Command: #SET_DISPLAY 1 <cr><lf></lf></cr>
		Response: @DISPLAY 1 <cr><lf></lf></cr>
Turns connected display OFF	#SET_DISPLAY 0	Command: #SET_DISPLAY 0 <cr><lf></lf></cr>
		Response: @DISPLAY 0 <cr><lf></lf></cr>
Increases volume by 1 value	#SET_VOL +	Command: #SET_VOL +CR> <lf></lf>
		Response: @VOL + <cr><lf></lf></cr>
Decreases volume by 1 value	#SET_VOL -	Command: #SET_VOL -CR> <lf></lf>
		Response: @VOL - <cr><lf></lf></cr>
Mutes / unmutes audio	#SET_AUDIO_MUTE	Command: #SET_AUDIO_MUTE <cr><lf></lf></cr>
		Response: @AUDIO_MUTE_UNMUTE <cr><lf></lf></cr>

Switcher RS232 Settings Commands

Use the following command structure to set the DL-SCU21C baud rate setting for RS232 control. By default the RS232 baud rate setting is set to 9600 bps.

Description	Command	Examples
Set baud rate setting	#SET_RS232_BAUD [B]	Command:
		#SET_RS232_BAUD 0 <cr><lf></lf></cr>
	[B] = 0 (115200)	
	1 (57600)	Response:
	2 (38400)	@RS232_BAUD 0 <cr><lf></lf></cr>
	3 (19200)	
	4 (9600)	
	5 (4800)	
	6 (2400)	
Query current baud rate setting	#GET RS232 BAUD	Command:
g , a series g		#GET_RS232_BAUD <cr><lf></lf></cr>
		Response:
		@RS232_BAUD 0 <cr><lf></lf></cr>

RS232 Programming Commands

Use the following commands to program and pre-load RS232 strings when the front panel buttons are used for display control.

To control a display using the DL-SCU21C RS232 port, be sure to locate the appropriate display operation commands in the TV displays owners manual.

Description	Command	Examples
Sends ASCII formatted string to display via RS232 when the ON button is pressed	#SET_ON_{B}_{T}:XXXX {B} = Baud Rate	Command: #SET_ON_04_01:POWER ON <cr><lf> Response: @BAUDRATE 9600 @DELAY TIME 1S @DISPLAY ON TO SEND: POWER ON The above example sends the command POWER ON to the display at baud rate setting 9600bps with the delay time set at 1 second.</lf></cr>
Sends ASCII formatted string to display via RS232 when the OFF button is pressed	#SET_OF_{B}_{T}:XXXX {B} = Baud Rate	Command: #SET_OF_04_01:POWER OFF <cr><lf> Response: @BAUDRATE 9600 @DELAY TIME 1S @DISPLAY OFF TO SEND: POWER OFF The above example sends the command POWER OFF to the display at baud rate setting 9600bps with the delay time set at 1 second.</lf></cr>

RS232 Programming Commands - continued

Description	Command	Examples
Sends ASCII formatted string to display via RS232 when the VOLUME UP button is pressed	#SET_AU_{B}_{T}:XXXX {B} = Baud Rate	Command: #SET_AU_04_01:VOL+ <cr><lf> Response: @BAUDRATE 9600<cr> @DELAY TIME 1S @VOLUME + TO SEND: VOL + The above example sends the command VOL+ to the display at baud rate setting 9600bps with the delay time set at 1 second.</cr></lf></cr>
Sends ASCII formatted string to display via RS232 when the VOLUME DOWN button is pressed	#SET_AD_{B}_{T}:XXXX {B} = Baud Rate	Command: #SET_AD_04_01:VOL- <cr><lf> Response: @BAUDRATE 9600 @DELAY TIME 1S @VOLUME - TO SEND: VOL - The above example sends the command VOL - to the display at baud rate setting 9600bps with the delay time set at 1 second.</lf></cr>
Sends ASCII formatted string to display via RS232 when the MUTE button is pressed	-	Command: #SET_AM_04_01:MUTE <cr><lf> Response: @BAUDRATE 9600 @DELAY TIME 1S @VOLUME MUTE TO SEND: MUTE The above example sends the command MUTE to the display at baud rate setting 9600bps with the delay time set at 1 second.</lf></cr>

RS232 Programming Commands - continued

Description	Command	Examples
Sends HEX formatted string	#SET_H_ON_{B}_{T}:XX XX	Command:
to display via RS232 when		#SET_H_ON_04_01:A1 B2 C3 <cr><lf></lf></cr>
the ON button is pressed	{B} = Baud Rate	
р	00 (115200)	Response:
	01 (57600)	@BAUDRATE 9600
	02 (38400)	@DELAY TIME 1S
	03 (19200)	@DISPLAY ON TO SEND: A1 B2 C3
	04 (9600)	
	05 (4800)	The above example sends the
	06 (2400)	command A1 B2 C3 to the display
		at baud rate setting 9600bps with
	{T} = Delay in seconds	the delay time set at 1 second.
	(00-99)	
	XX XX = HEX Formatted	
	Command String	
	Command String	
Sends HEX formatted string	#SET H OF {B} {T}:XX XX	Command:
to display via RS232 when		#SET_H_OF_04_01:11 22 33 <cr><lf></lf></cr>
the OFF button is pressed	{B} = Baud Rate	
ти ст. такий присоси	00 (115200)	Response:
	01 (57600)	@BAUDRATE 9600
	02 (38400)	@DELAY TIME 1S
	03 (19200)	@DISPLAY OFF TO SEND: 11 22 33
	04 (9600)	
	05 (4800)	The above example sends the
	06 (2400)	command 11 22 33 to the display
		at baud rate setting 9600bps with
	{T} = Delay in seconds	the delay time set at 1 second.
	(00-99)	
	VV VV _ HEV Formatted	
	XX XX = HEX Formatted	
	Command String	

RS232 Programming Commands - continued

Description	Command	Examples
Sends HEX formatted string to display via RS232 when the VOLUME UP button is pressed	#SET_H_AU_{B}_{T}:XX XX {B} = Baud Rate	Command: #SET_H_AU_04_01:D1 E2 F3 <cr><lf> Response: @BAUDRATE 9600 @DELAY TIME 1S @VOLUME + TO SEND: D1 E2 F3 The above example sends the command D1 E2 F3 to the display at baud rate settings, 9600 bps with the delay time set at 1 second.</lf></cr>
Sends HEX formatted string to display via RS232 when the VOLUME DOWN button is pressed	#SET_H_AD_{B}_{T}:XX XX {B} = Baud Rate	Command: #SET_H_AD_04_01:22 33 44 <cr><lf> Response: @BAUDRATE 9600 @DELAY TIME 1S @VOLUME - TO SEND: 22 33 44 The above example sends the command 22 33 44 to the display at baud rate settings, 9600 bps with the delay time set at 1 second.</lf></cr>
Sends HEX formatted string to display via RS232 when the MUTE button is pressed	#SET_H_AM_{B}_{T}:XX XX {B} = Baud Rate	Command: #SET_H_AM_04_01:33 4455 <cr><lf> Response: @BAUDRATE 9600 @DELAY TIME 1S @VOLUME MUTE TO SEND: 33 44 55 The above example sends the command 33 44 55 to the display at baud rate settings, 9600 bps with the delay time set at 1 second.</lf></cr>

System Commands

Description	Command	Examples
Query current firmware version	#GET_FIRMWARE_VERSION	Command: #GET_FIRMWARE_VERSION <cr><lf></lf></cr>
		Response: @v1.0.0 <cr><lf></lf></cr>
System Reboot	#REBOOT	Command: #REBOOT <cr><lf> Response: @REBOOT<cr><lf></lf></cr></lf></cr>
Reset system to factory defaults	#FACTORY_RESET	Command: #FACTORY_RESET <cr><lf> Response: @FACTORY_RESET<cr><lf></lf></cr></lf></cr>

Technical Specifications

Video		
Video Inputs	One (1) HDMI, (1) USB-C	
Video Input Connector	(1) HDMI type A, (1) USB-C	
Input Video Signal	HDMI for HDMI input, ALT-DP Mode for USB-C	
Video Output	(1) HDMI	
Video Output Connector	(1) HDMI type A	
Input Resolution Support	Up to 3840 x 2160 @60Hz / 4:4:4 / 8 bit deep color for HDMI	
input Nesolation support	Up to 3840 x 2160 @ 30Hz / 4:4:4 / 8 bit deep color for USB-C	
Output Resolution Support	Up to 3840 x 2160 @60Hz / 4:4:4 / 8 bit deep color	
Standards	Compliant with HDMI 2.0b, HDCP 2.2 and CEC	
Bandwidth	18Gbps	
USB		
Supported USB Standard	Up to USB 3.0 @ 5Gbps	
USB Port Types	(1) USB B (Host)	
	(1) USB C (Host)	
	(2) USB A (Client)	
Audio		
Supported output formats	Analog output: PCM	
	HDMI Embedded: LPCM 7.1 audio, Dolby Atmos®, Dolby® TrueHD, Dolby	
	Digital® Plus, DTS: X™, and DTS-HD® Master Audio™ pass-through	
Audio Output	Balanced Stereo Analog	
Audio Output Connector	5 pin Phoenix	
Audio Output Impedance	70 Ohms	
Frequency Response	20Hz-20KHz	
Control	,	
Control Port / Connector	(1) 3 Pin Phoenix	
Chassis and Environmental		
Dimensions (WxHxD)	168 mm x 24.5 mm x 95 mm (6.6 in x 1 in x 3.7 in)	
Shipping Weight	245g (.54 lbs.)	
Operating Temperature	0° to +55° C (+32° to +131° F)	
Operating Humidity	10% to 90%, Non-condensing	
Storage Temperature	-20° to +70° C (+14° to +158° F)	
Storage Humidity	10% to 90%, Non-condensing	
Power, ESD, and Regulatory	·	
Power Supply Input	100V-240VAC / 50-60 Hz	
Power Supply Output	24VDC / 2.71A	
Power Consumption	54 watts (max)	
ESD Protection	15kV	
Product Regulatory	FCC, CE, RoHS	
Power Supply Regulatory	CE, RoHS	
Other	·	
Standard Warranty	5 years	
Included Accessories	Quick Install Guide, Power Supply with US power plug, (1) 3-pin to DB9 RS232 Cable, (1) 5 pin Phoenix connector, (2) Mounting clips with screws and (4) plastic cushions	

Thank you for your purchase.

For Technical Support please call our toll free number at 800-530-8998 or email us at supportlibav@libav.com

www.libav.com

Digitalinx is a brand of:

